

Make-Up Air Units – What Every Unit Owner Should Know

Make-up air units supply fresh air to buildings to compensate for air lost through exhaust fans and other sources. Simply put, they “make up” for lost air, which helps to ensure good indoor air quality for everyone. **By: David Uren, Halsall Associates**



How Do They Work?

A make-up air unit is typically installed on the roof, either indoors or outside. The unit has a fan that draws in fresh outdoor air and pushes it into the building through metal ducts. Pushing air into a building positively pressurizes the room that it is exiting into. In the case of residential condominium buildings, this room is the corridor on each floor. When the corridor is pressurized, the air looks for a way to get out. Every suite door in the corridor has gaps around the door that have been purposely provided to allow the air to escape the corridor and enter the suite. This air

will make up for that lost through kitchen hood fans and bathroom exhaust fans in the suites, and provide fresh air in order to provide a healthier indoor environment. (See Schematic Diagram)

Since winter air is very cold, most make-up air units can also heat the air before it enters the building. This could be a gas-fired heater (typically used on outdoor units) or a hot water coil (typically used on indoor units). Some make-up air units are also equipped with cooling systems to cool and dehumidify hot summer air before blowing it into the corridors. This

can be done with either a cooling coil with a separate condensing unit (typically used on outdoor units) or a cooling coil connected to the building's chilled water system (typically used on indoor units).

So If I Don't Run My Exhaust Fans, I Don't Need Make Up Air?

No. It is essential to use exhaust fans. These remove odours and air contaminants from cooking, and excessive moisture from showering, washing dishes, laundry, etc. Not running exhaust fans can lead to a number of problems including unhealthy air, mold and moisture damage.

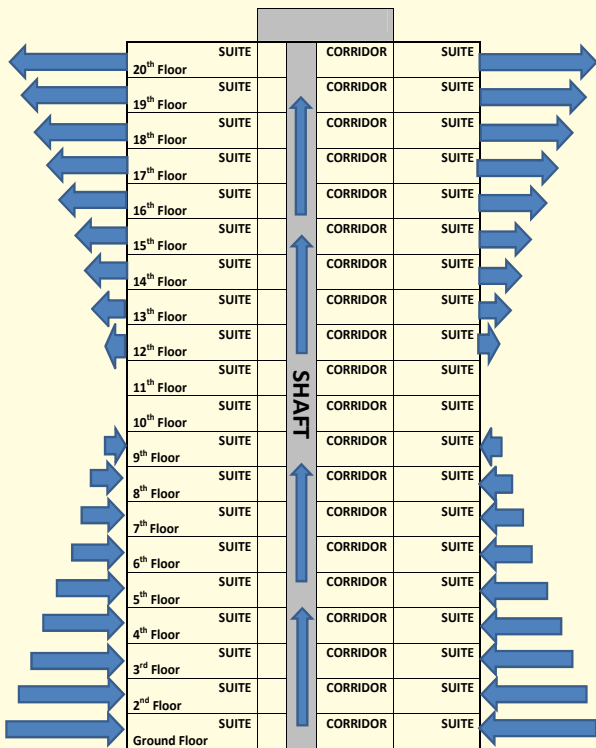
Building codes require buildings to be ventilated. Make-up air units, along with exhaust fans, provide this ventilation. Make-up air units need to be run continuously to meet the requirements of the building codes and many municipal property standards.

What Happens If I Turn Off My Make Up Air Unit?

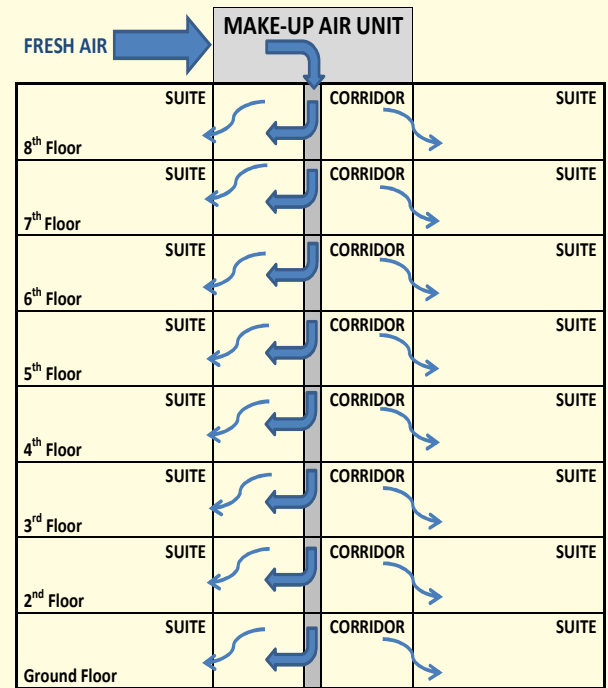
Not operating or reducing the fan speed of a make-up air unit can have numerous impacts.

1. Turning off a make-up air unit will allow air to travel through the building

The upward flow of air within a building by natural convection is called the stack effect.



Make-up air units supply fresh air to buildings to compensate for air lost through exhaust fans and other sources.



in undesirable ways. Pressurizing the corridors prevents air within the suites from entering the corridors and potentially entering other suites. This is how migration of cigarette smoke and cooking odours are prevented.

2. Turning off the make-up air unit could lead to resident comfort issues and increased heating costs. The make-up air unit pressurizes the entire building which reduces cold air from leaking in through the exterior walls.
3. Turning off a make-up air unit can lead to poor indoor air quality. When people breathe in air, they use the oxygen and exhale carbon dioxide. When adequate fresh air is not brought into a building, carbon dioxide levels increase. Very high levels can cause drowsiness and a general feeling of stale air. Also, if the make-up air unit is off, the concentrations of other indoor air pollutants such as dust, dander and chemicals is higher.

It is essential to use exhaust fans. These remove odours and air contaminants from cooking, and excessive moisture from showering, washing dishes, laundry, etc.

I See That Some People Have Sealed Their Suite Doors, Is This A Good Idea?

Many unit owners seal the perimeter of their suite doors with weatherstripping. This is typically done because the unit owner is annoyed with either noise transfer from the corridors, drafts or cool air coming through the suite door, or odour transfer from the corridor.

Sealing the suite door is not recommended. Indoor air quality in the suite will be reduced, particularly in the winter when windows and doors will not be left open. No fresh air in the suite will mean stale, unhealthy air and could lead to humidity/moisture issues like mold.

What Is “Stack Effect” And Why Should I Care?

In a tall building, warm air is always rising, just like warm smoke up a chimney, or “stack”. The upward flow of air within a building by natural convection is called the stack effect. This rising air causes the upper floors to be positively pressur-

ized and the lower floors to be negatively pressurized. This can cause unintended airflow within the building: Imagine you are on a lower floor of a tall building and you burn some toast. Your natural action would be to open a window, thinking that the smoke and odour will flow out. Due to stack effect, the opposite will actually occur. Being on the lower floor, air will be drawn into the suite rather than the smoke going out. Stack effect particularly affects elevator, garbage chute and stairwell shafts, which are typically continuous through the full height of the building and are therefore good at funneling air up. (See Schematic Diagram)

Many odour problems in buildings can be attributed to stack effect. If your corridor make-up air unit is not operating, or is turned down too low, air and odours from suites, and the garbage chute shaft will escape into the upper floor corridors. Make-up air units help temper stack effect by pressurizing the corridors and holding back any air that is trying to es-

Sealing the suite door is not recommended. Indoor air quality in the suite will be reduced, particularly in the winter when windows and doors will not be left open.

cape from these shafts at the upper floors.

Okay, We Can't Turn Our Make-Up Air Unit Off, But Can We Turn It Down?

In many buildings, residents or managers ask if the corridor makeup air unit can be turned down because it feels drafty in the hallways, or the air supply grilles are noisy. Some buildings want to turn the unit down to save on electricity.

The short answer is "maybe". In many existing buildings, the designer oversized the corridor air supply to make sure there were no complaints about hallway odours. In these cases, it may be possible to turn the unit down. The first step would be engaging an engineer to do a study to compare how much air the building actually needs by today's standards, against how much air is actually being supplied. In some cases, a variable speed controller can be added to reduce the flow from the makeup air unit. In no cases, however, should the unit be turned off, even at night. **CV**

Attention Condo Board Members

Question: How many

"Condo Management Companies" are out there, looking for your business?

Answer: OVER 200!!!

- Which one are you going to choose?
- Do you know what to ask them?
- Can you verify how good they really are?

With 40 years experience assisting condo directors administer their communities, I can help YOU.

I provide an intensive program that assures the most suitable management available for your condominium community.

I teach directors what to look for, how to choose the best management company, and how to assess their performance.

I've assisted condominiums all over the GTA. (References available)

INTRODUCTORY MEETING WITH ME IS FREE!

Call Alan at ***A. R. Consulting***

416-932-9510

Fax: 416-932-9769 E-mail: ar@condominiumconsulting.ca

Website: www.condominiumconsulting.ca



BRADY & SEIDNER
ASSOCIATES LTD.

Building Re-Pipe Division

Don't just clamp it, re-pipe it!

We make building re-pipes painless, our testimonials prove it:

- Extensive pre-planning and co-ordination
- Highly skilled technicians experienced with condos & apartments
- Minimal openings resulting in reduced damages to finishes
- Less disruption and down time
- Top quality work at competitive prices

Delivering the highest quality plumbing and heating service for over 50 years

For more information call **Mark Evangelista**



(416) 661-1981



We set the industry standard, others try to follow